Project Narrative for the West Virginia Telehealth Network

Purpose of the Project: **The goal of the West Virginia Telehealth Network ("WTHN") is to address the growing burden of chronic conditions and the lack of resources to effectively manage these conditions in the rural areas of West Virginia. The project will link existing resources and will create new linkages for training of health care professionals serving the rural areas of the state in chronic care management and will provide access to specialized allied health care professionals to assist in the provision of direct chronic care patient services using WTHN. By using proven technology applications such as video-conferencing over frame-relay, the quality of rural health care will be improved and the complications of chronic illness can be avoided. Because West Virginia has one of the oldest populations with a high concentration of adverse health outcomes, this application of technology to reduce the cost and complications of chronic illness will serve as a model for other states and the federal Medicare program that are facing similar challenges.**

The Problem to be addressed by the Project: **Access to and coordination of health care in rural West Virginia is hampered by the large number of people living in remote and rural areas, transportation barriers and an uneven distribution of health care providers. The demands on the system are increasing due to an aging, unhealthy population. The following factors have created a health care crisis that threatens to undermine the delivery of care in many rural communities:**

Forty-five of West Virginia's fifty-five counties are designated as rural. Eighty percent of the state's population lives in communities of less than 5,000 people. (See Appendix A) Fifty counties have at least some portion of the county designated as a medically underserved area and thirty-seven counties have some portion designated as a health professional shortage area. (See Appendix B and C)

More than 15% of the entire West Virginia population, urban and rural combined, is 65 years of age and older and is aging more rapidly than the national population The West Virginia poverty level statewide, urban and rural combined, is estimated to be nearly 19%, which exceeds the national rate for rural areas alone. Poverty levels in many West Virginia communities exceed 20%. (See Appendix D)

West Virginia leads the country in many unhealthy conditions despite spending more than $10 billion on health care in 2003. These costs could exceed $20 billion by 2010. The state currently faces a $168 million shortfall in Medicaid funding and a recent legislative report indicates that future state budget shortfalls, fueled in large measure by health care spending, are projected to grow to $1.4 billion over the next few years. One

of the drivers of these costs is the prevalence of chronic conditions. Chronic diseases such as cardiovascular disease, diabetes and arthritis account for roughly 78 percent of health care costs annually. More than 800,000 West Virginians (out of a total population of 1.8 million, or over 40%) have one or more chronic conditions. These conditions account for:

- **70 % of hospital admissions and 80% of all days spent in a hospital;**
- **72% of physician visits and 88% of prescriptions filled;**
- **nearly 60% of emergency room visits; and**
- **70 cents of every dollar spent for health insurance by employers and workers.**

One in every five dollars billed for hospital care in West Virginia is related to diabetes. Eight of every ten hospital discharges are related to cardiovascular disease (See Appendix E). Sixty-four percent of West Virginians do not maintain a healthy weight. There is a strong correlation (67%) between an unhealthy weight and diabetes, high blood pressure, hypertension, heart disease, asthma and/or cancer.

The solution: The WTHN, education and shared application of disease management technology: **In most rural areas of West Virginia, access to health care is provided by 34 non-profit Community Health Centers ("CHCs") operating over 70 clinical sites in 42 of the state's 55 counties. These CHCs last year collectively provided nearly $100 million in health care to almost 300,000 West Virginians, with over 1,000,000 patient encounters. (See map of health centers in Appendix F)**

The CHCs are an essential part of the health care delivery system in West Virginia since they provide critical access to health care for nearly half of the population living in rural areas. In response to the challenges described above, twenty-two CHCs have formed the West Virginia Primary Care Network (the "Network") to develop shared technology and operational resources to address the issue of chronic illness in the rural communities they serve. (See membership list in Appendix G and map of Network members in Appendix H)

The establishment of WTHN will link the CHCs to existing resources such as West Virginia University's MDTV described in Appendix I and similar academic medicine programs at Marshall University and the West Virginia Osteopathic School (see Appendix J, K). These linkages will give the CHCs access to disease management specialists in academic and teaching hospital settings. The WTHN system will also be used by the Network and the West Virginia Division of Primary Care (the "Division") to conduct training sessions for CHC medical and support personnel in adapting the Chronic Care system of care for use in the rural CHC environment. The Chronic Care system of care focuses on a patient-

centered, health care team approach to care delivery and coordination, with strong emphasis on patient education and self-management and measurable patient health outcomes. The Chronic Care model is strongly encouraged by the federal Bureau of Primary Health Care based upon research by the Institute for Chronic Care Improvement ("ICCI") (see Appendix L). Significant research by ICCI and the Bureau has demonstrated that use of the Chronic Care model in rural settings can significantly reduce the complications of chronic care and produce better health outcomes for an intensively management chronically-ill population.

Project Plan: **The WTHN is part of the Community Health Information System ("CHIS") developed by the Network and participating CHCs, and supported by strategic partners such as the Division, to use a multi-faceted technology approach to reducing the burden of chronic disease in rural communities. The WTHN will utilize video teleconference units and connectivity to complement the data elements of the CHIS which currently consists of a centralized practice management system deployed to ten participating CHCs (with other Network members being phased-in over time). The WTHN will also be coordinated with the Network's implementation of electronic health record functions within the CHIS for participating members. The WTHN will piggy-back on existing T-1 frame relay connectivity between the Network's central data center and each participating member site. The Network will serve as the linkage point for connectivity to other participants such as the Division, who will coordinate further linkage through state participants such as the Office of Health Promotions and academic health centers such as the WVU MDTV program described in Appendix I, J and K. For a summary of the project plan and timeline of the project, see Appendix P.**

Measurable Outcomes: **It is the goal of the Network, the Division and participating CHCs to improve the care afforded targeted patients over the course of the Project by use of WTHN and the CHIS to:**

- **Achieve ninety percent compliance with accepted preventative clinical protocols for participating patients of participating CHCs;**
- **Achieve a thirty percent improvement in targeted chronic disease clinical and diagnostic indicators, (diabetes, selected cardiovascular risk factors and depression related to both) compared to baseline state averages;**
- **Achieve a twenty percent reduction in targeted chronic disease risk factors for at risk patients by treatment and behavior modification according to accepted clinical protocols supported by WTHN usage;**
- **Increase coordination of clinical support functions, such as diabetic nutrition counseling and education through WTHN consultations; and**
- **Train 100% of the clinical staff of participating CHCs in the adoption of the Chronic Care model and the use of appropriate chronic disease management tools.**

These clinical objectives will be measured based upon US Preventative Task Force guidelines and accepted clinical guidelines for targeted chronic diseases (such as American Diabetes Association guidelines). Part of the evaluation of the effectiveness of the project will involve tracking of specific disease-related health status of participating patients, such as blood sugar levels, blood pressure levels, diabetic-related hospitalizations, changes in physical conditions and depression management indicators. Process outcome measures include number of people using the WTHN system, including number of clinical consults, number of patient services delivered by use of the system and number of clinicians trained (and cost savings for such training) by use of WTHN.

Innovation: **The cornerstone of this strategic initiative to improve health outcomes by the CHCs is the development of WTHN as part of the Network's CHIS. Since 2000 (the inception of the Network), the Network has deployed the CHIS to ten CHCs (with two more scheduled to join within the next four months) to create a state-wide community health care data warehouse for tracking and evaluation of the effectiveness of chronic disease management by the CHCs and strategic partners.**

As suggested in the guidance to the TOP announcement, the Network staff has reviewed the projects of successful grantees of the TOP program. A review of these projects reveals that while there are a number of similar projects that have used video-connectivity as part of a telehealth approach (including the Hawaii Area Health Education Center, the Southwest Louisiana Hospital project and the CRHED project in South Dakota, all funded by TOP grants), the use of this proven technology with a targeted focus on integrated chronic disease management is an innovative solution to the need to re-align an entire rural health delivery system and support a new care delivery model (i.e., the Chronic Care model) and to facilitate the sharing of scarce resources such as diabetic educators and cardiovascular specialists. Appendix M and N indicates that there are a limited number of these resources available in the more urban areas of West Virginia. By using the WTHN, these resources can be linked to the CHCs in the rural areas to improve access to care and to reduce the cost of deploying these resources since they can be shared by participating CHCs by use of the WTHN.

The research by the Network staff also indicates that while there have been ten TOP grants awarded for projects in West Virginia since 1994 (but none since 2002), none of these projects involves the use of technology for health care such as proposed by the Network in this application. The Network staff has also reviewed other sources of grant funding such as the Rural Utilities Service and has determined that the grant requested by the Network in this application is the most appropriate

source of assistance for the project. Limitations, restrictions or competing interests of strategic partners preclude other sources of grant funding.

***Diffusion Potential*: The Network's WTHN project will build upon the successful utilization by the Network and several CHC participants of video connectivity. The Network has a strategic affiliation with the Robert C. Byrd Center for Rural Health at the Marshall University School of Medicine (the "Center") and the Center is currently using the type of video connectivity contemplated in this project to facilitate and enhance rural medical resident training at Lincoln Primary Care Center (a Network member) and to support patient education and remote digital retinopathy at Tug River Health Association (also a Network member) as part of a diabetes disease management initiative. Thus, this project is an innovative expansion of proven technology applications to enhance rural health care. The WTHN project can be replicated in other rural settings and the lessons learned and evaluation of the project by the Network will be shared with others seeking a rural solution to effective chronic disease management.**

***Project Feasibility: Interoperability:* The WTHN project will integrate existing digital network segments such as WVU's MDTV and the Center's connectivity, with State agency platforms using multiple protocols. The project will also use accepted and proven video multiconferencing gateways and bridges to make effective use of existing frame-relay and ATM connections among participants. The VTC units, consisting of individual telehealth stations and multi-party telehealth stations, will be deployed to optimize the desired clinical outcomes, scaled to the size and number of clinical applications of each participating CHC.**

***Technical alternatives:* The WTHN will be deployed over existing frame-relay connectivity until other technology options become cost effective. Due to bandwidth requirements and limited availability of other options in some rural areas (i.e., DSL and VPN), frame-relay is currently the best option to serve as the backbone of the project.**

***Scalability:* The project will be implemented on a phased basis. The technical platform will be enhanced to accommodate additional traffic. As the number of end-users grows, system capacity will be expanded accordingly. The project plan contemplates this growth in the capacity of the multiconferencing units, bridge and system management software. As noted in the project budget narrative, the multiconference unit is scalable by adding additional modules (cards) for additional users. The project can accommodate more than the current membership of the Network (22 organizations) and it is hoped that all CHCs in West Virginia will ultimately benefit from the project.**

Participant Qualifications: **The Network and participating strategic partners have extensive experience deploying technology. As noted, the WTHN project will be integrated into the Network's CHIS system. This system is supported by the Network's staff and directed by the Network CIO, Diane Gaddis who is an experienced IT professional. The WTHN will also be supported by the Technical Manager of the Network and support will also be provided by the Division and academic participants such as WVU and the Center. See Appendix O for more information on the qualifications of participants in the project and the technology initiatives of the Network.**

Implementation: **The WTHN project is designed to be deployed over 24 to 36 months. Due to the Network's experiences of deployment of the CHIS, additional time and flexibility has been built into the timeline for deployment. In implementing the CHIS, the Network learned that unforeseen scheduling conflicts, staff demands and coordination of other projects can cause timelines to extend over a longer period of time that anticipated. A timeline and the project plan are included in Appendix P.**

Privacy: **When used as an education tool, no patient information will be associated with the WTHN. When used as a consultation or patient treatment tool, the transmission of patient-identifiable information will be secured and encrypted as required by HIPAA. Policies and procedures will be implemented to assure the protection of patient privacy.**

Sustainability: **By using VTC units located at each participating CHC, clinicians and staff will be able to participate in a variety of the project's collaborative efforts. Most participating CHCs do not have sufficient resources to sustain a full-time diabetes educator, a nutritionist, a mental health provider or chronic disease specialist on premises. WTHN will permit these services to be shared by participating CHCs through the Network CHIS platform. The cost savings of the WTHN project will sustain the operation of the system by participant cost-sharing beyond the initial set-up cost for which funding under the TOP program is being sought. The cost-savings projected by the Network is based upon mature projects such as the Eastern Montana Telemedicine Network that demonstrates over $500,000 in savings in reduced travel costs and provider time saved by use of that system (See Appendix S). West Virginia has the same remote rural geography as Montana and many of the Network member sites are more than 4-5 hours from each other. These distances, although driving up the cost of site implementations for the project due to travel, create great value for participating member CHCs through the use of the WTHN. The budget narrative describes in greater detail the financial sustainability of the project after the grant period expires.**

Community Involvement: **The project has been driven based upon an assessment of the needs and community capacity of each community**

served by the CHCs. Since most participating CHCs are required by federal funding to have significant community representation on their Boards of Directors, and since the Network is controlled by its member CHCs, there has been significant community involvement in determining the need for the services integrated into the project. The project also originated from within the clinical staffs of participating CHCs who are keenly aware of the health care needs of the communities served. Since the WTHN is intended as a patient care tool, significant on-going community involvement is assured.

Collaboration: **As noted above, the project has been designed based upon the successes of similar projects by the Network and its strategic partners. The support of the Division, who is the coordinating state agency on behalf of the academic health centers such as WVU and the Center, and is the lead state agency on behalf of the federal Bureau of Primary Care, assures coordination of the efforts of the strategic partners. The Network has a successful record of collaboration by and with its members CHCs. The Network is governed by a Network Participation Agreement and a supplemental participation agreement for CHIS users. This project is consistent with the Network Business Plan and has been authorized by the Network Executive Committee and the members. See the support letter from the Division in Appendix Q.**

Support for end-users: **The Network will provide training and centralized support for the operation of the WTHN and the technical infrastructure of the system. On-site and remote training will be provided and on-going training using the system is part of the project plan and the budget for the project.**

Evaluation strategy: **The evaluation strategy for the project involves formal assessment and feedback to be gathered from participating CHCs and strategic partners. The Network will provide quarterly and annual reports to its participating members and the Division on use of the system and the impact of such use on clinical outcomes. The evaluation will be performed using on-line survey tools and on-site visits. Outcome measures will include improvement in targeted health outcomes and process measures will include use of system for training and patient services (measured in units of service and time used). Cost savings for use of the system will also be calculated and reported.**

Evaluation questions: **The following questions will be addressed by the evaluation:**

- **Is there an improvement in health outcomes?**
- **Is there an increase in access to health services (how are scarce disease management resources shared)?**
- **Is the use of the WTHN cost-effective (cost of participation vs. savings)?**

- **Has each participating CHC successfully implemented the Chronic Care model?**

Data Collection and analysis: **Usage and clinical outcome measures will be gathered using the Network's CHIS and individual data will be reported back to the participating CHCs and verified by Network staff. The usage data will also be collaborated with affiliates such as WVU and the Center. A separate database will be kept for WHTN usage for training and patient services. Analysis of the data will be performed by Network staff and Division support personnel.**

Evaluators: **The internal evaluation of the WHTN will be performed by the Network staff at the direction of the Network CIO and Operations Officer. External evaluation of the WHTN will be performed by the Division staff under the direction of the Director of the Division. Evaluation may also be provided by content providers such as WVU and the Center to determine the effectiveness of the use of the WTHN for education purposes and by patient satisfaction surveys to determine patient reaction to use of the WTHN for patient consultation.**

Budget: **The budget information for the project is attached and reflects the cost-effectiveness of the project and that the funding requested from TOP is essential to the successful implementation of this project. Funds for evaluation of the project have been included in the budget.**